

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A magnetic powder comprising:

an alloy composition represented by $R_x(Fe_{1-a}Co_a)_{100-x-y-z}B_yM_z$ (where R is at least one rare-earth element selected from the group consisting of Nd and Pr, a ratio of Pr with respect to a total mass of R is in the range of 20-60%, M is at least one element selected from Ti, Cr, Nb, Mo, Hf, W, Mn, and Zr, x is 7.1 – 9.9 at%, y is 4.6 – 8.0 at%, z is 0.1 – 3.0 at %, and a is 0 – 0.30);

wherein the magnetic powder further comprises a composite structure having a soft magnetic phase and a hard magnetic phase;

an average particle size of the magnetic powder is 1-50 μm ; and

when the magnetic powder is mixed with a binding resin and then the mixture is subjected to compaction molding to form a bonded magnet having a density $\rho[\text{Mg/m}^3]$, a maximum magnetic energy product $(BH)_{\text{max}}[\text{kJ/m}^3]$ of the bonded magnet at room temperature satisfies the relationship represented by the formula of $(BH)_{\text{max}}/\rho^2[\text{x}10^{-9}\text{J}\cdot\text{m}^3/\text{g}^2] \geq 2.40$, and the intrinsic coercive force H_{CJ} of the bonded magnet at room temperature is in the range of 430 – 750 kA/m.

2. (Previously Presented) The magnetic powder as claimed in claim 1, wherein the remanent magnetic flux density $Br[\text{T}]$ of the bonded magnet at room temperature satisfies the relationship represented by the formula of $Br/\rho[\text{x}10^{-6}\text{T}\cdot\text{m}^3/\text{g}] \geq 0.125$.

3. (Currently Amended) A magnetic powder comprising:

an alloy composition represented by $R_x(\text{Fe}_{1-a}\text{Co}_a)_{100-x-y-z}\text{B}_y\text{M}_z$ (where R is at least one rare-earth element selected from the group consisting of Nd and Pr, a ratio of Pr with respect to a total mass of R is in the range of 20-60%, M is at least one element selected from Ti, Cr, Nb, Mo, Hf, W, Mn, and Zr, x is 7.1 – 9.9 at%, y is 4.6 – 8.0 at%, z is 0.1 – 3.0 at%, and a is 0 – 0.30);

wherein the magnetic powder further comprises a composite structure having a soft magnetic phase and a hard magnetic phase;

an average particle size of the magnetic powder is 1-50 μm ; and

when the magnetic powder is mixed with a binding resin and then the mixture is subjected to compaction molding to form a bonded magnet having a density $\rho[\text{Mg}/\text{m}^3]$, a remanent magnetic flux density $\text{Br}[\text{T}]$ of the bonded magnet at a room temperature satisfies the relationship represented by the formula of $\text{Br}/\rho [\times 10^{-6} \text{T} \cdot \text{m}^3/\text{g}] \geq 0.125$ and the intrinsic coercive force H_{CJ} of the bonded magnet at room temperature is in the range of 430 – 750 kA/m.

4. (Previously Presented) The magnetic powder as claimed in claim 1, wherein the magnetic powder has been obtained by milling a melt spun ribbon.

5. (Original) The magnetic powder as claimed in claim 4, wherein the thickness of the melt spun ribbon is 10 - 40 μm .

6. (Previously Presented) The magnetic powder as claimed in claim 4, wherein the melt spun ribbon has been obtained by colliding a molten alloy of a magnetic material onto a circumferential surface of a cooling roll which is rotating to cool and then solidify the molten alloy.

7. (Original) The magnetic powder as claimed in claim 6, wherein the cooling roll includes a roll base made of a metal or an alloy and an outer surface layer provided on an outer peripheral portion of the roll base to constitute the circumferential surface, in which the outer surface layer of the cooling roll has a heat conductivity lower than the heat conductivity of the roll base.

8. (Previously Presented) The magnetic powder as claimed in claim 7, wherein the outer surface layer of the cooling roll is formed of a ceramic.

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Previously Presented) The magnetic powder as claimed in claim 1, wherein the magnetic powder has been subjected to a heat treatment at least once during the manufacturing process or after the manufacture of the magnetic powder.

13. (Original) The magnetic powder as claimed in claim 1, wherein the mean crystal grain size of the magnetic powder is 5 – 50nm.

14. - 23. (Cancelled)

24. (Previously Presented) The magnetic powder as claimed in claim 3, wherein the magnetic powder has been obtained by milling a melt spun ribbon.

25. (Original) The magnetic powder as claimed in claim 3, wherein the thickness of the melt spun ribbon is 10 - 40 μ m.

26. (Previously Presented) The magnetic powder as claimed in claim 24, wherein the melt spun ribbon has been obtained by colliding a molten alloy of a magnetic material onto a circumferential surface of a cooling roll which is rotating to cool and then solidify the molten alloy.

27. (Original) The magnetic powder as claimed in claim 26, wherein the cooling roll includes a roll base made of a metal or alloy and an outer surface layer provided on an outer peripheral portion of the roll base to constitute the circumferential surface, in which the outer surface layer of the cooling roll has a heat conductivity lower than the heat conductivity of the roll base.

28. (Previously Presented) The magnetic powder as claimed in claim 27, wherein the outer surface layer of the cooling roll is formed of a ceramic.

29. (Cancelled)

30. (Cancelled)

31. (Original) The magnetic powder as claimed in claim 3, wherein the magnetic powder is constituted from a composite structure having a soft magnetic phase and a hard magnetic phase.

32. (Previously Presented) The magnetic powder as claimed in claim 3, wherein the magnetic powder has been subjected to a heat treatment at least once during the manufacturing process or after the manufacture of the magnetic powder.

33. (Original) The magnetic powder as claimed in claim 3, wherein the mean crystal grain size of the magnetic powder is 5 – 50nm.